

Water Treatment Equipment and Services ISA

FINLAND

Summary: Finland is situated in Northern Europe, by the Baltic Sea, with the neighboring countries Sweden (West), Norway (North), Russia (East) and Estonia (South), across the Gulf of Finland. Finland is known as a land of forests and lakes. Forests cover roughly three quarters and waters about 10 percent of the country's surface area.

The development of environmentally compatible technologies got off to an early start in Finland. As a result, Finnish companies are well positioned in international trade and experienced in establishing cooperative technological partnerships. Environmental technology itself has become an area of high-tech production in Finland. By means of technology transfer, Finland has helped its eastern neighbors in solving their environmental problems. Both individuals and the industrial management are highly conscious of the need for environmental protection and preservation of the present high standard. In Finland, the requirement for best available technology is included in the Water Act, Air Pollution Control Act, Waste Act and Sea Protection Act.

There is support for the development of new environmental technology in Finland. The country grants subsidies and tax breaks for companies who buy or export Finnish pollution control equipment. The government has also funded technology centers such as TEKES (Technology Development Center) and VTT (Technical Research Center of Finland), which have established environmental departments for R&D of new pollution control technology. This is expected to increase local competition in the market. Finland is also actively involved in global environmental cooperation with the aim of promoting sustainable development in all efforts and at all levels.

Finnish capabilities in environmental technology are high. However, they are also very costly due to high labor and manufacturing overhead costs. Finnish companies have substantial expertise in wastewater treatment and are considered one of the world leaders in this field. With an import market share of 35 percent, Germany is Finland's major supplier of water pollution controls followed by Sweden (20 percent), Denmark (20 percent) and the United States (10 percent). Finns are looking for high technology and quality from U.S. suppliers interested in entering the Finnish market.

The best sales prospects for U.S. companies are within the following product lines: aerators, compressors, cooling towers, pumps, valves, measuring instruments and process control systems. U.S. companies have also the opportunity to cooperate with Finnish companies in large projects and to look for the markets of the Baltic countries and Russia, which are most easily accessed through Finland.

A. MARKET OVERVIEW

Administration and Financing of Water Services

According to the Act on Public Water and Sewage Works, local authorities are responsible for providing water services. All municipal water and sewage works are public but also private water or sewage works can be accepted as public works. There are more than 700 water works in Finland. Municipal waterworks supply over 90 percent of the total amount of water. In rural

areas there are also more than 400 small water works, cooperatives and limited liability water companies owned by the users. Wastewater services are mainly publicly owned. Industry and other water users, such as hospitals and army bases, also own and manage some water and sewage works.

There are several forms of inter-municipal cooperation in water services. For instance, some wholesale companies owned by neighboring communes abstract and treat water and sell it to the local public waterworks. They do not sell water directly to the consumers. There are also bilateral agreements on buying and selling water and discharging or receiving wastewater in case of centralized treatment. Water services are highly capital intensive: some 80-90 % of the total expenses are fixed, i.e. independent of water consumption. Most public waterworks operate on commercial, though nonprofit basis. The cost of services, both investments and operation costs, are presently covered by direct customer fees. Earlier local taxes were also used for financing construction of water and sewage works.

In Finland the state gives some subsidies to the water services investments. This government support has now been directed mostly to investments in smaller municipalities, with higher subsidy percentages in the northern and eastern parts of the country, and to important inter-municipal systems. The present total share of all forms of government support to the water services is well under 10 percent of the total yearly investments. No government subsidies are available for operation and maintenance.

Coverage of Water and Sewerage Services

Sanitary standards in Finnish homes are fairly high. Piped water is available in 97 percent, and sewer system in 98 percent of Finnish households. In 2000, about 90 percent of the population were connected to the public water distribution network. The others take drinking water mainly from private wells. Public sewerage systems serve about 80 percent of the population. Due to long distances in sparsely populated areas, the percentage figures of public water services coverage are rather low compared to many other European countries. However, the number of inhabitants served by public water services has continuously increased in Finland. The coverage of public water services in densely populated areas is almost 100 percent.

Research and Development/Water Services

Research and development in the field of water services has a comparatively long history in Finland. Several research institutions have traditionally concentrated on problems that have been important with respect to domestic needs of water and sewage utilities. Later, international cooperation has also become more important. At present the major research institutions in this field are the Finnish Environment Institute (FEI), Geological Survey of Finland, National Public Health Institute, Finnish Center for Radiation and Nuclear Safety, Helsinki University of Technology, Tampere University of Technology, University of Oulu and Abo Akademi University.

Most R&D projects have been conducted in cooperation with municipal water and sewage works and universities. Today the focus in water treatment is on artificial groundwater production. FEI participates in the EU-project called Artificial Recharge of Groundwater together with research institutions from Denmark, Sweden, Belgium, Germany, the Netherlands and Spain. In the future, the development of technology for small water works will be an important research issue. Removal of some harmful substances in the groundwater, such as radon, fluoride and arsenic, still call for continued research efforts. In addition, the development needs of the water works will also concentrate on rehabilitation of networks and process equipment.

In the framework of "Water Services 2001" FEI has also a project studying the eco-efficiency of water supply and waste water treatment as well as a project to develop on site waste water treatment methods and management systems for their construction, operation and maintenance.

International Cooperation and Export Activities in the Field of Water Services

In 1991, Finland's Ministry of the Environment launched what is a still strongly proceeding program in Central and Eastern Europe, i.e. in the Baltic countries, Russia and Poland. The cooperation promotes and supports projects, which aim to improve the state of the environment with both finance and other relevant means. The program focuses on investment projects, technical assistance and training in the fields of air and water pollution control and waste management. Protection of the Baltic Sea has been one of the main targets. Renovation of the sewers in St. Petersburg and construction of the wastewater treatment plants in Tallinn, Estonia and Klaipeda, Lithuania are among the major investment projects. Many consulting, manufacturing, and construction companies as well as the Finnish Environment Institute have been involved in projects financed partly through the Ministry of the Environment. Also some water and sewage works have been involved in cooperation in the Baltic countries and in Russia. For instance, Tallinn's water and sewage works are developed through technology transfer and know-how between the cities of Helsinki and Tallinn.

Water supply and sanitation have traditionally been one of the key sectors of Finland's development cooperation. The Government of Finland has supported several bilateral projects in African countries and in the Far East countries. Finnish construction companies have also carried out projects worldwide in the water supply and sanitation sector. As to export activities of Finnish planning and consulting companies, water supply and sanitation have been one of their key sectors. Important market areas are the OECD countries, the Eastern European countries and developing countries. In the field of water industry, plastic pipes, pumping technology, water and wastewater treatment equipment, as well as chemicals, have been among the main export items of material suppliers.

Goals in the 2000's for Waste Water Treatment

Membership of the European Union and other international and bilateral agreements have affected and will continue to affect the requirements for wastewater treatment in Finland. All regulations of the Council Directive concerning urban wastewater treatment have been incorporated in the Finnish legislation. The Finnish Government Resolution on the Water Protection Targets to 2005 reflects these demands together with national goals.

The Environmental Protection Act in a Nutshell

Finland's revised environmental protection and water legislation became effective on March 1, 2000. The new Environmental Protection Act (86/2000) implements the European Union directive on Integrated Pollution Prevention and Control (Ippc), which obliges EU member states to integrate control of emissions caused by industry. The new act is a general act on the prevention of pollution, which is applied to all activities that cause or may cause environmental damage.

The principles of the Environmental Protection Act:

- Prevention or restriction of damages to a minimum caution and precaution - principle
- Application of the best available technology (BAT)
- Best practice from the perspective of the environment (BEP)
- The polluter pays - principle

Water Act - The Water Act was passed in 1961 and has since been revised several times. The act aims to control strictly altering and damming of water bodies. Any activities likely to damage water bodies are subject to permit. Applications for permits are processed individually and permits are granted on case by case basis. The permit authorities are the regional Environment Permit Authorities and in certain circumstances, the local environmental authorities.

Neopoli - A Collector of Environmental Expertise

Environmental Center Neopoli is a company and market oriented developer of environmental technology. Neopoli's mission is to transfer environmental technology research and make it available for the use of companies. Neopoli operates both in research and product development of enterprises and in international projects.

Its international activities include planning and coordination of environmental projects, acting as a link between experts, municipal representatives and enterprises. The emphasis in international activities has been on Northwest Russia and the Baltic countries. The most exotic projects are to the Balaton region of Hungary and to the Rustenburg region in South Africa. Neopoli has been especially successful in waste management and surface water quality.

Statistical Data

Wastewater treatment equipment

Data Table – \$Millions	2000	2001	2002
A. Total market size	138	155	163
B. Local Production	148	165	174
C. Exports	100	110	116
D. Imports	90	100	105
E. Imports from the U.S.	8	9	10
F. Exchange rate: \$1=FIM 6.50			

Source: Board of Customs, Bureau of Statistics (import/export figures). Production figures are rough estimates.

The National Technology Agency with an annual budget of \$ 0.4 billion is the main financing organization for applied and industrial research and development in Finland. In 2000, about \$ 44 million was allocated for environmental technology projects, representing 12 percent of the total R&D funding.

Best Prospects

The best sales prospects for U.S. companies include equipment for improving processes in companies. The Finnish forest industry in particular has placed emphasis on process improvement and development of closed systems. Following equipment offer best sales prospects for U.S. companies:

- Aerators compressors (=Blowers), cooling towers, pumps, valves, measuring instruments such as flow meters etc., process control systems

Nitrification and nitrogen removal technology is another good prospect for U.S. companies. Initially Finland placed lower priority on N-emissions reduction; however, demand is expected to shift toward de-N technology along with the new requirements. Finnish municipalities will be the main purchasers.

U.S. companies should also consider Finland as a base when opening their marketing and transportation activities to the former Soviet Union. Finns know how to do business in these countries. Finland's excellent infrastructure and its geographical proximity to Russia and the Baltic countries, especially Estonia, give Finland an advantage as a gateway to the East.

Furthermore, a market niche to consider is the small-scale wastewater treatment equipment. This sector includes the sewer systems and wastewater treatment for households and small institutions (schools, holiday resources, and camping sites) not connected to a centralized plant. The market consists of one million people and the need for products to facilitate waste water treatment.

B. COMPETITIVE SITUATION

Competitive Factors

The key competitive factors to enter the Finnish market are quality, level of technology and price. Other competitive factors are fast delivery, good business relationships, prompt response to customer's requests and after sales service. Good references and international experience are also valued.

Finns are looking for the highest technology in the field. Freight costs from European companies are lower due to shorter distances. Moreover, as the EU laws and restrictions continue to tighten, EU countries' technological imports may be favored.

U.S. Market Position and Share

The United States is primarily dominant in the area of monitoring, measuring and controlling instruments for detection of air and water pollution. In this product category, U.S. share of imports is estimated at 30 percent. In pumps for liquids, the United States has a 10 percent import market share and about 15 percent in water pollution controls.

Competition with high-tech local manufacturers in the Finnish market is very challenging for importers. The U.S. companies with successful presence in the Finnish market have advanced product technology, high quality and international experience. U.S. companies could also consider using Finland as a base when opening their marketing and transportation activities to Russia and the Baltic countries.

Domestic Production

Intensive research and development are the keys to Finland's high-quality environmental products and services. Finnish industry has expertise in areas such as wastewater treatment, environmentally sustainable pulp and paper products, and efficient energy technology. Finnish companies also manufacture a wide range of highly specialized measuring systems and instruments. Creating technologies for sustainable development in construction is one of the new priority areas. For example, the chemical wood processing industry has vastly reduced its emissions to both air and water with the help of modern technology.

There are over a hundred local companies in the field of water engineering in Finland. Finnish environmental companies can be divided into two groups according to their size. There are the large multinationals and small and medium sized companies. Large firms operate on a broad field and usually have a strong presence on all three sectors (air pollution control, water and wastewater treatment, and waste management). The small companies are strong in high specialization and flexibility. Since Finland is a small country, Finnish companies must expand their strategic operations overseas to remain competitive in the world markets.

C. END-USER ANALYSIS

Two largest end-user groups in wastewater treatment in Finland are the municipalities and the forest industry. Other end-users include chemical, petrochemical, fertilizer and foods industries and several breweries.

Municipalities

The public sewer system in Finland serves 3.9 million inhabitants, which corresponds to about 75 percent of the total population. The rest of Finland's population lives in rural areas. Treatment efficiency of municipalities treatment plants has improved considerably in the last ten years. Only 0.2 percent of wastewater is still discharged without treatment at a centralized plant.

The majority of municipal treatment plants were built in the early 1970's. In the next few years Finland's municipalities are expected to renew the old plants. In most cases the old basins will be used but the machinery will be replaced. Unlike the Finnish industry, municipalities will base their buying decisions more on the price than technology. This is expected to create market potential for U.S. companies.

Forest Industry

The treatment goals for wastewater generated by the pulp and paper industry by 2005 include reduction of POD load from 40x103t/a to 10x103t/a, COD from 275x103t/a to 96x103t/a, phosphorus to about 1/4 from recent 380x103t/a, nitrogen to half, and AOX from 3000t/a to 560 t/a.

There are about 50 pulp and paper mills in Finland. These mills generate about 90 percent of industrial wastewater load, which is mostly treated in their own treatment plants. Treatment facilities in forest industry include: in-plant water circulation and effluent control systems, reduction of odorous gas emissions and design, engineering and operational control of external biological effluent treatment plants.

Tertiary treatment process (flotation) and equipment to improve processes and development of closed systems offer market potential in Finnish pulp and paper industry.

Other End-Users

Other end-users for water and wastewater treatment include chemical, petrochemical and fertilizer industries, which have their own treatment facilities.

The largest chemical company in Finland is Kemira Oy. Wastewater from food industries and several breweries is normally piped to municipal treatment plants. Pretreatment of wastewater is often required for these industrial enterprises. Furthermore, the wastewater from the surface coating industry is often conveyed to municipal treatment plants or pretreated at the factory. Another end-user group is small households and institutions (holiday resorts and schools) in rural areas whose wastewater is not treated at a centralized plant. These residences have demand for small wastewater treatment equipment.

D. MARKET ACCESS

Import Climate

The import climate is very open and receptive for U.S. products and investments in Finland. There are no significant trade barriers or regulations that need to be overcome.

Environmental protection and control equipment imported from the European Union (EU) or the European Free Trade Area (EFTA) are not subject to import duty if manufactured within the respective trading block. Finland is an EU member and has a free trade agreement with these regional blocks but not with countries, such as the United States, Japan, and Canada. The general range of duties from third countries, such as the United States is 3.5-11.5 percent depending on the product. Furthermore, Finland applies a 22 percent value added tax on all goods, whether produced domestically or imported.

Distribution Channels/Business Practices

Using an importer/distributor or an agent is recommended when importing specific equipment. Finnish importers have direct distribution channels and good connections with various energy, chemical, and paper manufacturers. The companies have also access to municipalities and provide after sales services. License agreements are also an alternative when entering the Finnish market.

U.S. companies seeking to invest in the East European region should consider entering the market via joint ventures or strategic alliances with Finnish companies. Finland's geographical location, infrastructure and long history of trade with Russia and the Baltic countries provides knowledge and expertise to do business in these countries. These arrangements work well, since Finnish firms have a high level of technological know-how but often lack financial resources for larger technology investments.

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